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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,467	06/14/2001	Tsutomu Takayama	1232-4724	2685

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MORGAN & FINNEGAN, L.L.P.
3 WORLD FINANCIAL CENTER
NEW YORK, NY 10281-2101

EXAMINER	
EDWARDS, PATRICK L	

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/883,467	TAKAYAMA ET AL.	
	Examiner	Art Unit	
	Patrick L. Edwards	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5,7-36,40,42-71,75 and 77-106* is/are pending in the application.

4a) Of the above claim(s) *1,5,10-21,26-31,33-36,40,45-56,61-66,68-71,75,80-91 and 96-101,103-105* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-9,22-25,32,42-44,57-60,67,77-79,92-95,102 and 106* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The response received on 28 March 2005 has been placed in the file and was considered by the examiner. An action on the merits follows.

Response to Arguments

2. The applicant's arguments filed on 8 October 2004 and 28 March 2005 have been fully considered. A response to these arguments is provided below.

Restriction Requirement

Procedural Posture:

Applicant provisionally elects to prosecute group I and further elects species 4 of that invention.

Summary of Argument:

1. Applicant argues the preliminary point that the examiner's statement that "the threshold value is calculated by subtracting a predetermined value from a maximum gray level" is incorrect. Applicant points out that the word maximum should be changed to average (see remarks pg. 28).

2. Applicant traverses the restriction requirement and argues that examination of the pending claims would not be unduly burdensome to the examiner. Specifically, applicant opines that the examiner's previous search on the pending claims eliminates any future burden on the examiner.

Examiner's Response:

1. The examiner agrees. It appears as if the restriction requirement contained a minor error. The words "average" and "maximum" from claims 3 and 4, should be swapped with each other. Let the record show that species 4, which the applicant elected, corresponds to an "average gray level" and not a "maximum gray level." This error has no substantive effect on the restriction requirement or the rejection in general.

2. The examiner disagrees. The prior search performed by the examiner is irrelevant. Further examination of the claims will require further search and consideration in accordance with the amended claims. This search and consideration poses a serious burden on the examiner. The restriction is therefore still deemed proper. Accordingly, the restriction requirement is made FINAL.

Drawing Objections

Summary of Argument:

Pursuant to the drawing objection set forth in the previous office action, applicant has submitted replacement sheets for Figures 28-34. These Figures are now correctly labeled as "prior art."

Examiner's Response:

The examiner has received these replacement sheets and greatly appreciates the applicant's efforts to quickly resolve the problem. The examiner approves the newly submitted replacement sheets, and the previous drawing objections are hereby withdrawn.

37 CFR 1.75 Claim Objections

Summary of Argument:

Claims 3, 4, 38, 39, 73, and 74 were objected to in the previous office action under 37 C.F.R. § 1.75(d)(1) as failing to conform to the invention as set forth in the remainder of the specification. Applicant has subsequently cancelled these claims.

Examiner's Response:

The cancellation of the claims has rendered the objections moot.

Information Disclosure Statement

Summary of Argument:

In the previous office action, the examiner submitted that the prior art system described in the background of the applicant's disclosure is considered extremely pertinent to the prosecution of the application. The examiner requested that the applicant provide an information disclosure statement with documentation teaching such a system. Applicant has neither provided the requested information disclosure statement, nor provided any explanation as to why this information was not provided.

Examiner's Response:

The prior art system described in the background of the disclosure is considered extremely pertinent to the prosecution of the application. The examiner hereby renews the request for documentation describing such a system.

Prior Art Rejections

Procedural Posture:

Applicant has elected group I, species 4 in accordance with the restriction requirement. Applicant's arguments directed to non-elected claims are now considered moot and will not be addressed.

Summary of Argument:

With regard to independent claims 32, 67, 102, and 106: Applicant argues that "Maeda discloses dividing an infrared image into a plurality of blocks. However, each block is compared to a first IR luminance level, which is constant throughout the image. In this manner, Maeda cannot disclose the shading of the infrared image different from the claimed invention."

Examiner's Response:

Applicant's arguments are unpersuasive. In fact, applicant's arguments are moot because they are directed to a feature ("the shading of the infrared image) not recited in the claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 7, 32, 42, 67, 77, 102, and 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Edgar (USPN 5,266,805), Florent (USPN 5,832,111), and Maeda et al. (US 2003/0128889)

With regard to claim 102, which is representative of claims 32 and 67, Edgar discloses a visible light source for mainly emitting visible light, an infrared light source for mainly emitting infrared light and a photoelectric converter for converting an optical image into an electrical signal (Edgar col. 7 lines 10-28). The color camera disclosed in Edgar is a photoelectric converter which converts an optical image into an electrical signal as recited in the claim.

Edgar further discloses a means for comparing a threshold value with infrared image signal components and extracting infrared image signal components not more than the threshold value (Edgar col. 12 lines 26-30).

Edgar further discloses a means for executing an interpolation process of a visible light image signal on the basis of the infrared image signal components not more than the threshold value (Edgar col. 12 lines 30-35). Although the Edgar reference discloses comparing infrared image signal components to a threshold value in order to determine the existence of a defect, it fails to expressly detail a means for determining the threshold value. Florent, however, discloses a means for generating a histogram on the basis of an infrared image signal and calculating a threshold value on the basis of that histogram (Florent col. 11 lines 14-19).

It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Edgar's image reading apparatus by calculating a threshold value on the basis of a generated histogram as taught by Florent. Such a modification would have allowed for a system in which the threshold value was determined from the grey levels of the image (Florent col. 3 lines 40-43). This would have decreased uncertainty about the choice of a threshold value and consequently allowed for more accurate defect detection (Florent col. 3 lines 40-43).

The combination of Edgar and Florent discloses processing visible image signals and infrared image signals for an entire image, but fails to expressly disclose performing this process on an image which has been segmented into a plurality of blocks. Maeda, however, discloses segmenting an infrared image signal in a plurality of blocks and performing visible and image signal processing on the respective blocks (Maeda paragraph [0121]).

It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Edgar and Florent's image reading apparatus by segmenting the infrared image into a plurality of blocks as taught by Maeda. Such a modification would have allowed for the accurate detection of image defects (Maeda paragraph [0119]).

With regard to claim 106, Edgar further discloses a computer program product comprising a computer usable medium having computer readable program code (Edgar col. 8 lines 5-9).

With regard to claim 77, which is representative of claims 7 and 42, Florent discloses generating a histogram of frequences of occurrence of respective gray levels of the infrared image signal (Florent col. 1 lines 34-40).

5. Claims 8-9, 22-25, 43-44, 57-60, 78-79, and 92-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Edgar and Florent as applied to claims 7, 42 and 77 above, and further in view of Nichani et al (USPN 5,949,905). The arguments as to the relevance of the aforesaid combination as applied above are incorporated herein.

With regard to claims 78 and 79, which are representative of claims 8, 9, 43 and 44, Nichani discloses calculating a threshold value by subtracting a value given by a predetermined relation from a gray leveling representing an image (Nichani col. 3 lines 20-27). Nichani further discloses calculating a standard deviation and determining the value to be subtracted on the basis of the standard deviation (Nichani col. 3 lines 20-27). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Edgar and Florent's image reading apparatus by specifying that a threshold value is determined on the basis of a calculated standard deviation as taught by Nichani. Such a modification would have allowed for a system that could detect defect signals based on their deviation from a given set value.

With regard to claim 92, which is representative of claims 22 and 57, Nichani discloses calculating an average gray level of the histogram and calculating the threshold value by subtracting a predetermined value from the average gray level (Nichani col. 3 lines 20-27).

With regard to claim 93, which is representative fo claims 23 and 58, Nichani discloses that the predetermined value is pre-stored (Nichani col. 2 lines 61-67). The standard deviation values discloses in Nichani are pre-stored.

With regard to claim 94, which is representative of claims 24 and 59, Nichani discloses that the predetermined values are externally input (Nichani col. 3 lines 48-52).

With regard to claim 95, which is representative of claims 25 and 60, Nichani discloses calculating a standard deviation and determining the predetermined value on the basis of the standard deviation (Nichani col. 3 lines 20-27).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period,

then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L. Edwards whose telephone number is (571) 272-7390. The examiner can normally be reached on 8:30am - 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick L Edwards Art Unit 2621

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ANDREW W. JOHNS
PRIMARY EXAMINER